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Cc: [Garry T. Griffith](#); [L. Chase Fortenberry](#); [Erickson, Michael](#)
Subject: Area 1 SWAC Calculations
Date: Thursday, March 14, 2013 5:13:00 PM
Attachments: [Area 1 SWAC Example Recalculation.pdf](#)
 [Area 1 SWAC Example Recalculation.xlsx](#)

Dear Gentlemen,

On behalf of Mr. Garry Griffith and Georgia-Pacific, please find attached two documents regarding Area 1 SWAC calculations. Should you have any questions please contact Garry at your convenience.

Respectfully,
Barb Shreve on behalf of Garry Griffith

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Example Recalculation of Area 1 FS SWAC Using only Transect Data

In Consideration of EPA General Comment 36 and MDEQ Key Comment 3

As suggested by the U.S. Environmental Protection Agency (USEPA) the surface-weighted average concentration (SWAC) for each sub-section within Area 1 was recalculated using only transect-based sample data in a manner consistent with the calculation (stream tube) methodology presented in the Area 1 Supplemental Remedial Investigation (SRI) Report (Appendix J).

Sampling event data used in the example recalculation of SWAC are highlighted in the table below. All other sampling event data were considered to be somewhat biased in nature (i.e. locations were judgmentally chosen based on results of previous sampling events) and so were excluded from the calculation based on the suggestion by USEPA.

Sampling Event	Year
1993/1994 Portage Creek Sediment Investigation	1993/1994
1993/1994 Sediment Investigation	1993/1994
1993/1994 Sediment Source Investigation	1993/1994
2000 Focused Sediment Sampling	2000
2000 Geochronological Investigation	2000
2000 Morrow Dam to Lake Allegan Dam Sediment Sampling	2000
2005/2006 Plainwell Sediment Sampling	2005/2006
2007/2008 SRI Surface Sediment Sampling	2007/2008
2008 Plainwell Confirmation Sampling	2008
2008 Plainwell No 2 Sediment Transect Sampling	2008
2008 Portage Creek Sediment Sampling	2008
2008 Portage Creek Sediment Transect Sampling	2008
2008 SRI Sediment Transect Sampling	2008
2009 Focused Step-Out Sampling	2009
2009 Plainwell Post Construction Sampling	2009
2009 SRI Sediment Transect Sampling	2009
2009/2010 Crown Vantage Investigation	2009/2010
2009/2010 Hot Spot Sampling	2009/2010
2010 Off-Channel Areas	2010

The resulting SWAC calculations along with a comparison of SWACs presented in the Area 1 draft FS and by MDEQ in their Key Comment 3 on the Area 1 FS are presented in Table 1 and Figure 1, below. Source calculations are provided in the attached excel sheet.

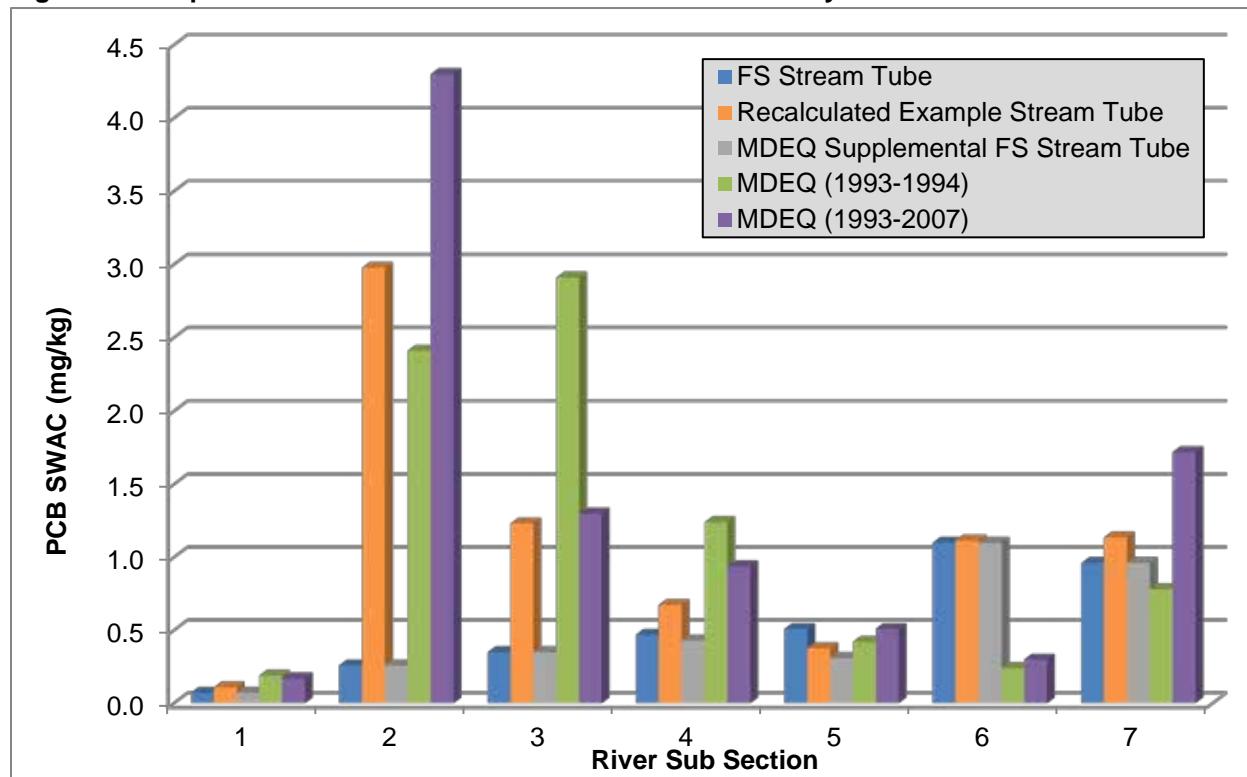
This recalculation does not form Georgia-Pacific's formal response to USEPA or MDEQ's comments and is provided for information only. As agreed, further discussions are expected to be held with USEPA and MDEQ as part of a working group to come to consensus on the sample group used for calculation of the SWAC.

Table 1: Comparison of River Sub Section Pre-Removal SWACs Calculated by ARCADIS and MDEQ

River Sub-Section	Total Area (acres)	Stream Tube ^{1,3,4} SWAC per Area 1 FS (mg/kg)	Recalculated Example ^{2,3,4} Stream Tube SWAC (transect samples from 1993-2009)			MDEQ SWAC				
			Transect Count	Sample Count	SWAC (mg/kg)	Supplemental FS Stream Tube	Unbiased Samples (1993-94)	Unbiased Samples (1993-2007)		
1	85	0.072	14	104	0.11	0.072	80	0.19	97	0.17
2	29	0.26	8	60	3.0	0.26	41	2.4	66	4.3
3	29	0.35	7	53	1.2	0.35	17	2.9	50	1.3
4	130	0.47	16	118	0.67	0.43	81	1.2	139	0.94
5	110	0.51	12	83	0.38	0.31	65	0.42	89	0.51
6	24	1.1	14	131	1.1	1.1	9	0.24	18	0.30
7	39	0.96	13	97	1.1	0.96	8	0.78	52	1.7

Notes:

1. Stream Tube SWAC per Area 1 FS includes all Kalamazoo River channel, hot spot assessment areas, mill race, Crown Vantage side-channel, and sampled and unsampled off-channel areas. SWAC estimate includes data from all years.
2. Recalculated Example Stream Tube SWAC (transect samples from 1993-2009) includes all Kalamazoo River channel sample data from the 1993-1994 RI transect sampling, 2007-2009 SRI transect sampling, and 2008 Plainwell No. 2 Dam Area transect sampling.
3. In locations where a core was not analyzed (i.e. a core was obtained, but samples were not sent for PCB analysis), average concentrations from cores in the same transect and of the same texture (i.e. fine or coarse) were substituted.
4. In locations where there was no recovery in a core, a value of zero was included in the SWAC calculation.
5. mg/kg = milligrams per kilogram.

Figure 1: Comparison of River Sub Section SWACs Calculated by ARCADIS and MDEQ

Attachment Area 1 SWAC Calculations14-03-2013.xlsx (70210 Bytes) cannot be converted to PDF format.